A11.E108
JACC March 9, 2010
Volume 55, issue 10A

CARDIAC ARRHYTHMIAS

COMBINED ENDOCARDIAL AND EPICARDIAL ELECTROANATOMIC MAPPING OF A NOVEL PORCINE INFARCT MODEL: A COMPARISON OF NAVX AND CARTO

ACC Poster Contributions
Georgia World Congress Center, Hall B5
Monday, March 15, 2010, 3:30 p.m.-4:30 p.m.

Session Title: Mapping and Ablation of Ventricular Tachycardia: New Insights
Abstract Category: Clinical Electrophysiology--Ventricular Arrhythmias
Presentation Number: 1190-138

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Background: Contact mapping with NAVX has not been systematically evaluated in the left ventricle and the accuracy of this system to detail scar substrate has never been compared to CARTO.

Methods: A closed-chest infarction procedure was performed in 40-50 kg pigs by occlusion of a circumflex branch for 150 minutes. After 4-12 weeks, high-density endocardial and epicardial mapping was performed using CARTO and NAVX. Multipolar mapping was performed using the NAVX system with a duodecapolar catheter with interior projection setting of 8mm. Electrograms in low voltage regions (<1.5mV) were analyzed and surface area of low voltage regions was calculated. Statistical analysis was performed to calculate a correlation coefficent. Gross pathological examination was used to confirm areas of scar and fat.

Results: Seven porcine subjects undewent high-density endocardial and epicardial mapping (364±92 points) was performed 48±19 days after infarction. The mean low voltage area on CARTO for epicardial fat was 18.6±16.6 cm2 and the mean area for scar was 12.1±9.9 cm2. Gross pathologic examination confirmed subendocardial scar in all seven subjects and four infarctions involved the epicardium. Low voltage regions were well correlated between CARTO and NAVX (R=0.83, p<0.001).

Conclusion: A strong correlation for estimating low voltage area was seen between CARTO and multipolar mapping with NAVX in regions of epicardial fat and infarction confirmed by gross pathologic examination.